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|-----------------|-------------------------------------|----------|-------------------------------------|
| 12, 22, 32, 42: | DRIVING CIRCUIT | 33: | FINISHING TOOL FEED CONTROL CIRCUIT |
| 52: | CENTRAL PROCESSING UNIT | 43: | WORKING PIECE FEED CONTROL CIRCUIT |
| 13: | MAIN SHAFT ROTATION CONTROL CIRCUIT | 53: | COUNT SECTION |
| 15: | SPEED SIGNAL GENERATION CIRCUIT | 56: | ROM |
| 23: | ROUGHING TOOL FEED CONTROL CIRCUIT | 57, 57a: | POSITION DATA TABLE MEMORY |
| | | 61: | PROCESSING DATA INPUT SECTION |

FIG. 2A

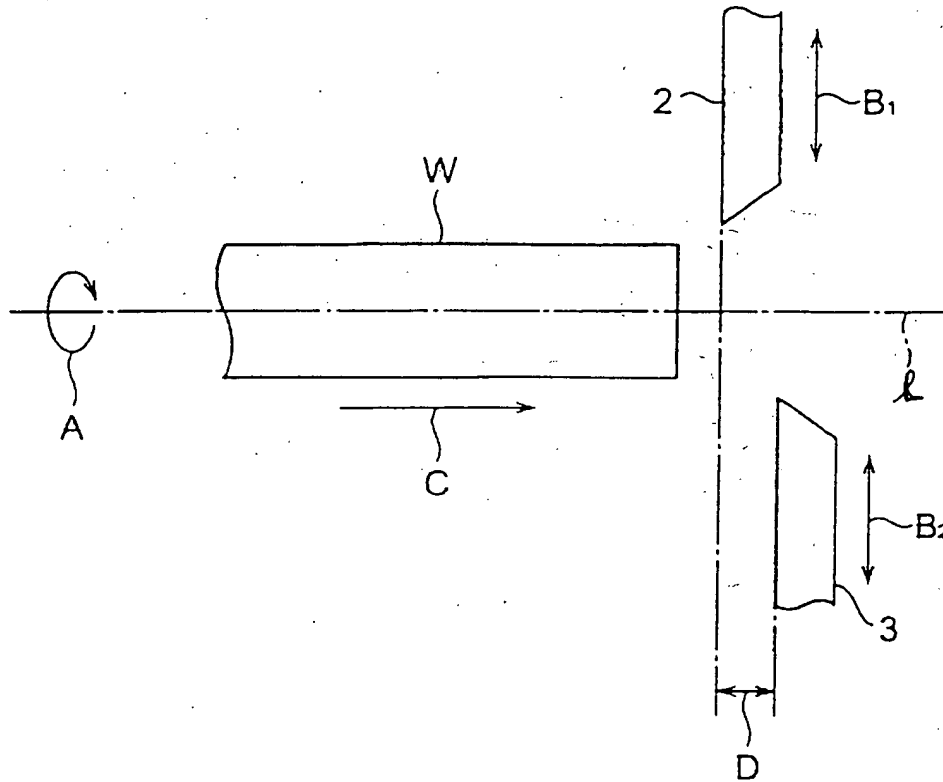


FIG. 2B

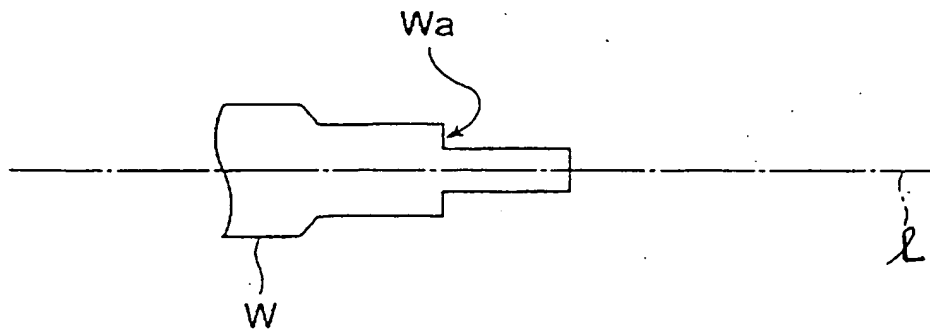
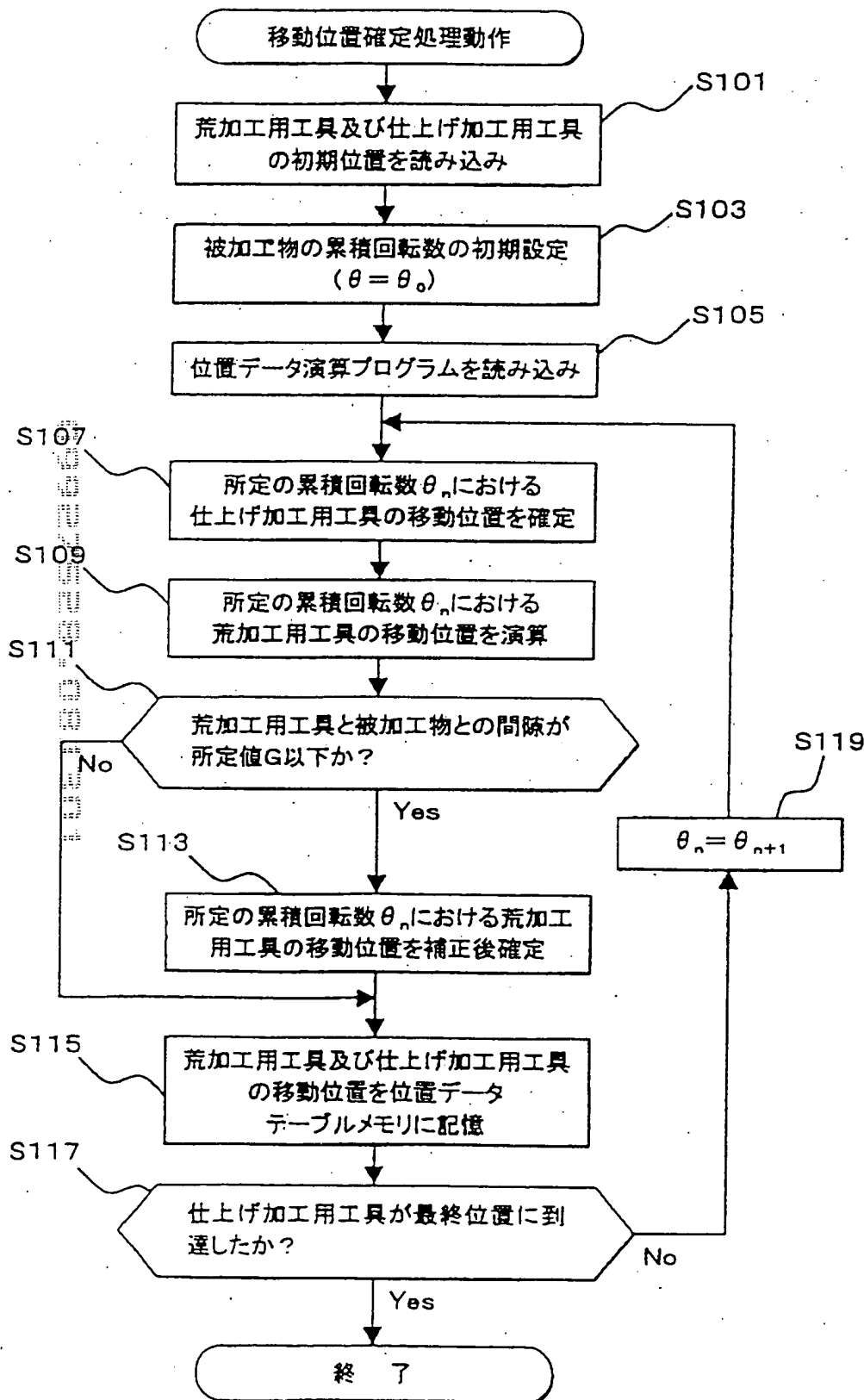
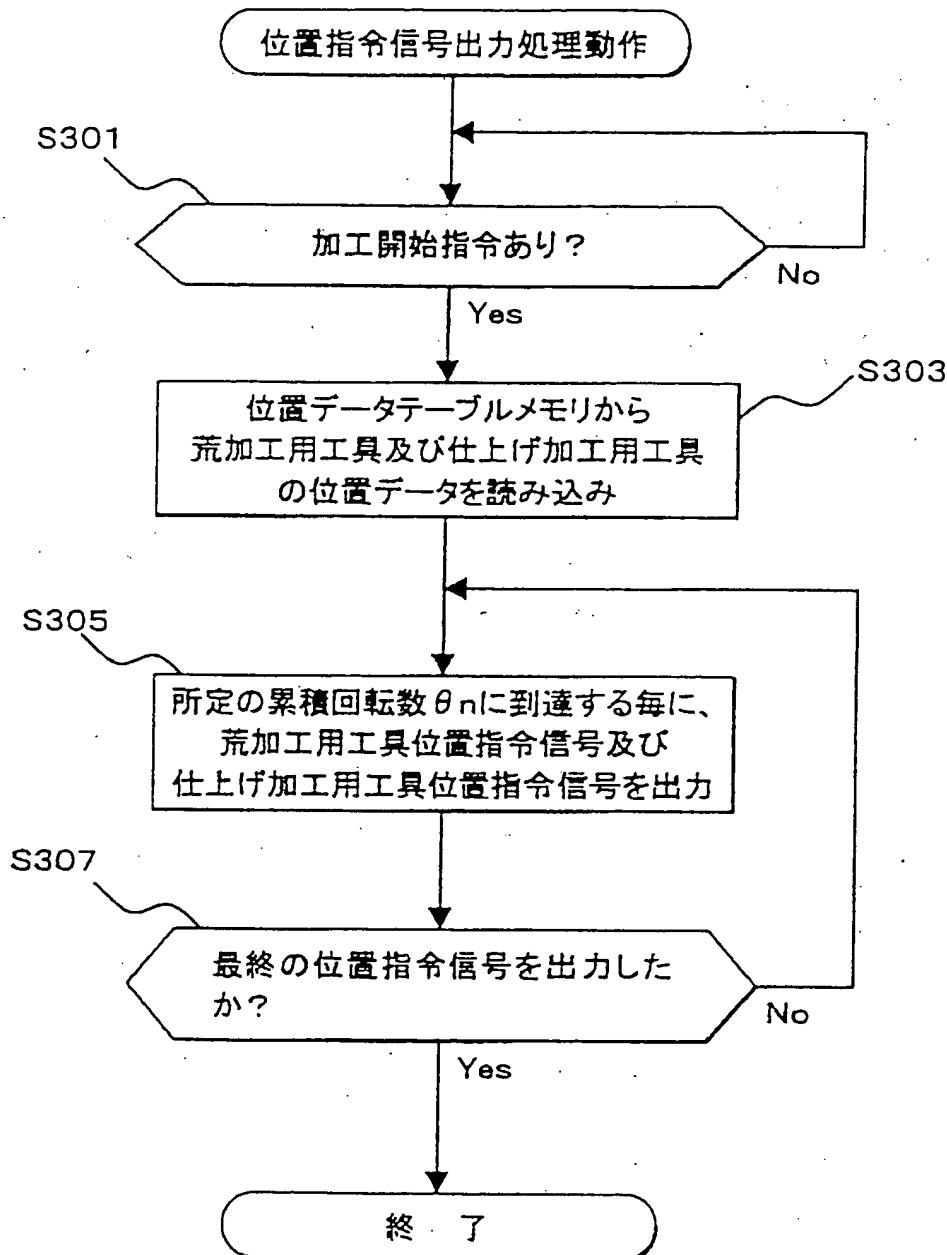


FIG. 3



S101: READ IN INITIAL POSITIONS OF ROUGHING TOOL AND FINISHING TOOL
S103: INITIALIZE SETTING OF ACCUMULATION NUMBER OF ROTATION OF WORK PIECE ($\theta = \theta_0$)
S105: READ IN POSITION DATA CALCULATION PROGRAM
S107: SETTLE MOVEMENT POSITION OF FINISHING TOOL IN A PREDETERMINED ACCUMULATION NUMBER OF ROTATION θ_n
S109: CALCULATE MOVEMENT POSITION OF ROUGHING TOOL IN A PREDETERMINED ACCUMULATION NUMBER OF ROTATION θ_n
S111: IS GAP BETWEEN ROUGHING TOOL AND WORK PIECE NOT LARGER THAN A PREDETERMINED VALUE G?
S113: CORRECT AND SETTLE MOVEMENT POSITION OF ROUGHING TOOL IN A PREDETERMINED ACCUMULATION NUMBER OF ROTATION θ_n
S115: STORE MOVEMENT POSITION OF ROUGHING TOOL AND FINISHING TOOL IN POSITION DATA TABLE MEMORY
S117: FINISHING TOOL REACHES FINAL POSITION?
S119: $\theta_n = \theta_{n+1}$

FIG. 4

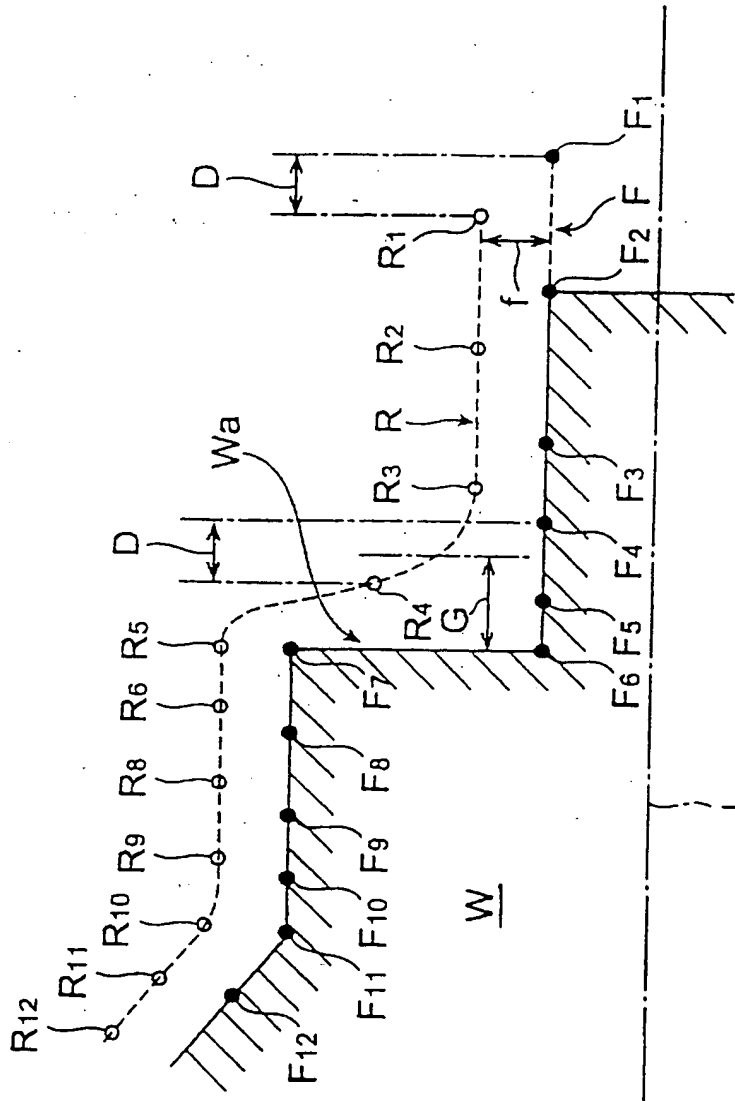


S301: IS THERE PROCESSING START COMMAND ?

S303: READ IN POSITION DATA OF ROUGHING TOOL AND FINISHING TOOL FROM POSITION DATA TABLE MEMORY

S305: OUTPUT ROUGHING TOOL POSITION COMMAND SIGNAL AND FINISHING TOOL POSITION COMMAND SIGNAL EVERY TIME WHEN THE
NUMBER OF ROTATION REACHES A PREDETERMINED ACCUMULATION NUMBER OF ROTATION θ_n .

S307: IS FINAL POSITION COMMAND SIGNAL OUTPUTTED ?



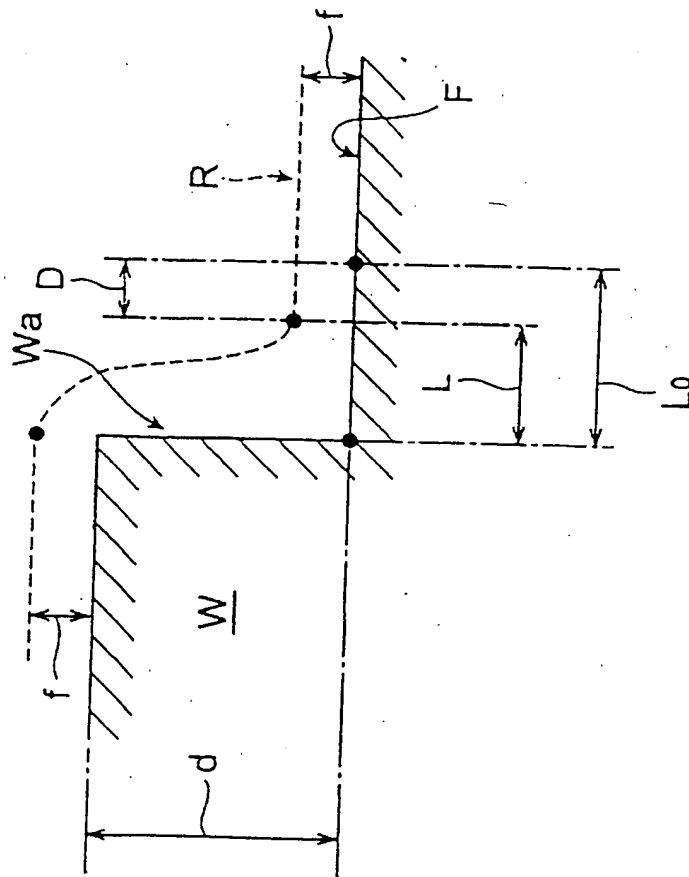


FIG. 6

FIG. 7A

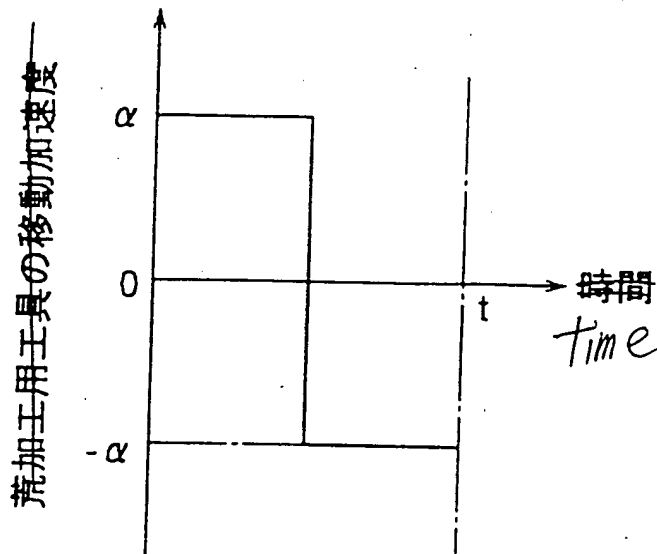
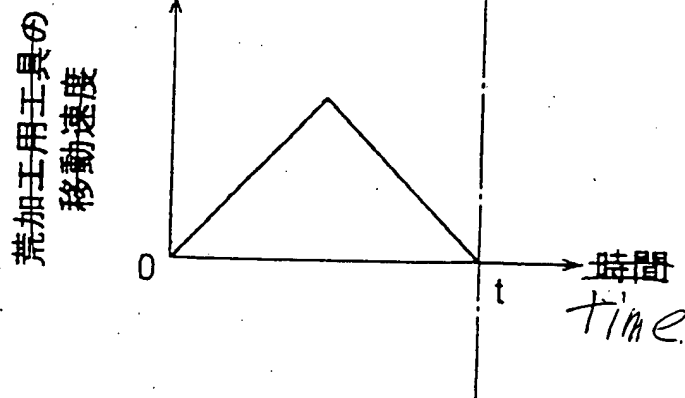


FIG. 7B



movement speed of
roughing tool

movement ac